By RICHARD RUGGLES and NANCY D. RUGGLES

Integrated Economic Accounts: Reply

In what follows, Richard and Nancy D. Ruggles, of Yale University, continue the discussion of prospects and problems of integrated economic accounts. The May issue of the SURVEY OF CURRENT BUSINESS *presented the set of integrated economic accounts they prepared and their discussion of them; comments by producers and users of economic accounts, inside and outside of BEA; and background information.*

Introduction

IN the May 1982 issue of the SURVEY OF CURRENT BUSINESS, a set of national income and product accounts and balance sheets was presented by the authors under the title "Integrated Economic Accounts for the United States, 1947–80." These experimental accounts were followed by eight comments by reviewers who had had substantial experience in the construction and/or use of the national accounts.[1] This article responds to the issues raised by the reviewers, clarifies or amends some of the arguments advanced in the original presentation, and in general continues the dialogue on this topic.

The discussion is divided into three sections. The first section is concerned with the issue of integration of economic accounts: the role of the national accounts, the implications of integration for the sectoring of the accounts, and how microdata can be related to the macroaccounts. The second section deals with more detailed questions relating to the definition and use of the transactor approach, the treatment of specific transactions, and the form of presentation of the accounts. A concluding section summarizes the views of the reviewers with respect to the proposed modifications and extensions and evaluates the role of the national accounts in the future development of the U.S. statistical system.

I. Integration of the Economic Accounts

A. The role of the national accounts in integration

1. The nature of integration.—Carson and Jaszi indicated in their comments that, although integration has long been recognized as a desirable objective, the presentation of the integrated economic accounts (IEA's) did not clearly specify what it meant by the term, either with respect to coverage or with respect to the kinds of linkages an integrated system's parts must exhibit. The point is very relevant—integration may be as respected as motherhood, but it is much more difficult to define. In one sense, the present national income and product accounts (NIPA's) and their supplementary tables constitute an integrated system of core accounts and related data. As Denison observed, the great strength of the NIPA's lies in their use of a few simple formal accounts that are supplemented by many supporting tables tied to these accounts. The supporting tables disaggregate the summary accounts in various ways and provide details of their composition.

In another sense, however, there is a broader role for the national accounts that suggests that they, because of their comprehensive nature, can and should provide a coordinating and integrating framework for all economic statistics. In this broader sense, the economic statistics of the United States cannot be considered to be well integrated, and the NIPA's do not play a large part. Integration in this broader sense would require using common definitions and classification systems consistent with the national accounts for related data from different sources, and establishing the major economic constructs of the national accounts as control totals to which various parts of the statistical system must be related. The United Nations System of National Accounts (SNA) envisages such a role for the national accounts in the integration of all economic statistics, and many other countries do use their national accounts to serve this purpose. But the NIPA's do not function this way in the U.S. statistical system. Rather, BEA considers its task to be primarily one of drawing upon a large number of fragmentary, diverse, and uncoordinated sources obtained from different government agencies, in order to piece together a set of core national accounts and supporting tables. Feedback, in terms of influence upon the basic data, is limited and in many instances nonexistent.

In both of these senses, integration is a matter of degree. There is, of course, no one point at which a statistical system becomes "integrated." Integration in the first sense can be increased by extending the comprehensiveness of the core system of accounts. In the second sense, it can be increased by utilizing the national accounts more fully as the framework for the wider statistical system. The IEA's attempted to move in both of these directions, by (1) expanding the NIPA core accounts to include financial transactions and stocks, and (2)

1. The reviewers were Hans J. Adler and Preetom S. Sunga, Statistics Canada; Carol S. Carson and George Jaszi, BEA; Edward F. Denison, formerly at BEA; John A. Gorman, BEA; Martin L. Marimont, formerly at BEA; Stephan P. Taylor, Board of Governors of the Federal Reserve System; Helen Stone Tice, BEA; and James Tobin, Yale University.

redesigning the accounts to serve more adequately as a coordinating framework for economic and social data at different levels of aggregation.

2. Enlarging the national accounts.—With respect to the first of these directions, that of expanding the scope of the NIPA core accounts, the reviewers did not disagree with the objective. It was noted by Tobin that the very essence of an accounting system—for a household, an enterprise, or a Nation—is a consistent joint evaluation of stocks and flows; the national accounting system should show how changes in balance sheets from one date to another arise from incomes, outgoes, and reevaluations in the intervening period. The United Nations SNA calls for such an arrangement, as was pointed out by Adler and Sunga, but no country (including Canada) has ever previously published a full set of such integrated accounts. As Taylor observed, the flow of funds (FOF) accounts of the Federal Reserve Board are at an aggregate level both statistically and conceptually integrated with the NIPA's of BEA as a logical deconsolidation of the NIPA gross saving and investment account. However, most users do consider that NIPA and the FOF accounts are separate and distinct, rather than integral parts of the same system. This perception is reinforced by the differences in sectoring and classifications used in the two systems. The IEA presentation combined the two sets of data into a common framework with a single system of sectoring, and provided the capital accounts and balance sheets for the government sector as well as for the sectors covered by the FOF accounts.

3. National accounts as a statistical framework.—With respect to the second objective, that of redesigning the national accounts so that they can serve as a framework for a system of economic and social data at different levels of aggregation, a number of reviewers expressed substantial dissent. The dissent took two forms: Some felt that the objective was mistaken, and others that it was impractical of achievement.

Both Marimont and Denision felt that this objective imposed features that were irrelevant or harmful to the analytic usefulness of the accounts. Marimont did not specify what these features are. Denison felt that the GNP account in the IEA's is not appropriate for the measurement of production, because it employs gross rather than net concepts. Although it is true that the IEA's are centered around the concept of GNP rather than that of national income, this feature of the system is based on the belief that GNP is analytically a more useful concept for many purposes than national income; it is, of course, unrelated to the use of the national accounts as a framework for microdata. The rationale underlying the design of the IEA's was that the analysis of macroaccounts requires an understanding of microeconomic behavior, and as a consequence it is important to use the same concepts at both the macrodata and microdata levels. It would have been equally possible to build both the national income and product account and the enterprise sector accounts around net concepts, which in turn could be related to microaccounts also constructed on a net basis.

Carson and Jaszi did not so much question the objective as express skepticism about the possibility of achieving it. They doubted, for instance, that it would be possible—or could seriously be proposed—to develop the accounts in such a way that they would embrace the broad spectrum of data included in the Census Bureau's *Social Indicators*. Whether such data could in practice be integrated into the IEA framework depends upon whether microdata sets exist that contain the basic information and can be adjusted to fit (both conceptually and statistically) the major economic constructs of the IEA's. It is our belief that such microdata sets do exist, and that they can be integrated with the macroaccounts. It seems worth examining this question more closely.

Appendix A to *Social Indicators III* describes in some detail the 27 major sources of data that were used in compiling this volume.[2] Aproximately 14 of the sources relate to households or individuals and contain microdata that could in principle be fitted into the household sector of the national accounts. These include, for example, the Census of Population and Housing, the Current Population Survey, the Health Interview Survey, the National Crime Survey, Statistics of Income, the Survey of Income and Education, Social Security Benefit Data, and the National Travel Survey. Indeed, many of these sources have already provided microdata for "exact matched" or "statistically matched" files used in conjunction with the existing national accounts. Another seven of the sources of data listed were reports containing microdata from governmental units (e.g., Annual Surveys of State and Local Governments) and surveys of health and educational institutions; it should be possible to relate all of these to the government sector and its subsectors in the national accounts. In some instances the device of satellite accounts suggested by Adler and Sunga might prove to be useful for breaking out the more detailed information (e.g., data relating to the health subsector or to institutions of higher learning). As might be expected in a volume on social indicators, relatively few (four only) of the listed sources referred to enterprises, but these, including the Current Business Survey, the Consumer Price Index, and the Producer Price Index, could all usefully be developed as microdata sets integrated with the national accounts. In the case of both the consumer and producer price data this would require using classification systems for the price data that are consistent with the classifications used in the national accounts—something that, somewhat incredibly, is not now done.

Of all the sources of data for *Social Indicators* listed in Appendix A, only one—the Uniform Crime Reporting Program—appears to be inappropriate for integration with the national accounts. The reporting units in this case are law enforcement agencies in various localities, and the data reported are various types of crime committed. There are a few more sources of this type among the less important sources not listed in Appendix A, which reported automobile accidents, deaths by fire, and atmospheric pollution; the microdata in these sources also consist of reports by specific localities. These location-specific types

2. U.S. Department of Commerce, Bureau of the Census (Washington, D.C.: U.S. GPO, 1980).

of information suggest the desirability of including locational attributes in the microdata for households, enterprises, and governments. Localities could then be treated as reporting units providing data on crime, accidents, and environmental conditions occurring within them. Such linkages to the national accounts would be extremely useful for examining the costs and benefits of programs carried out by different levels of government or for evaluating the welfare of individuals living in a given area.

4. National accounts as a measure of welfare.—Adler and Sunga asked why the rationale for both the established and new treatments of national accounts were not viewed with some welfare consideration in mind. We would argue that the IEA's were specifically designed to take several important aspects of welfare measurement into account. The literature on welfare economics has made it clear that the presently existing macroeconomic constructs of the national accounts, which are primarily composed of transactions data, cannot provide an adequate basis for the measurement of welfare. In the first place, welfare is not merely a function of the total amount of income and wealth in a Nation; it is obviously related to the distribution of that income and wealth. In the second place, the boundary established by transactions omits many elements that are directly relevant to welfare, such as nonmarket activities, environmental conditions, and other factors affecting the quality of life. The IEA's attempted to be responsive to both of these dimensions of welfare measurement in their effort (1) to establish linkages between the aggregates of the macroaccounts and the economic and social microdata for households and individuals, in order to permit the analysis of distributions of income and wealth, and (2) to separate market transactions data from nonmarket information, in order to allow for the expansion of nonmarket imputations without impairing the usefulness of the accounts for analyzing the behavior of the market economy.

5. The establishment-firm dichotomy.—Adler and Sunga and also Carson and Jaszi expressed disappointment that the problems of integrating input-output into the accounts were not considered. In particular, they were concerned with the lack of comparability between the establishment-based industry classifications used for input-output analysis and the firm-based industry classifications used for saving, financial transactions, and balance sheets.

Both the NIPA's and the United Nations SNA view input-output as a deconsolidation of the production account for the Nation, and IEA's adopt this same approach. Although there are problems of execution, these problems were felt to be too technical, too detailed, and too well recognized to merit specific consideration in the discussion of the IEA's.

We would argue, furthermore, that the specific establishment-firm problem raised by the reviewers is not properly a question of integration in the sense that this term has been used in the discussion to this point. It does not arise from lack of statistical coordination, but from the inherent situation. A single firm may own establishments in different industries, and it, therefore, is not possible to choose a single industry classification for the firm that is the same as the industry classification of its establishments. The fact of the matter is that it is really inappropriate to classify a firm's activity in a single industry if it is actually engaged in several industries. The firm can be, and in the NIPA's is, classified into the industry accounting for the largest share of its output, but this cannot be expected to lead to the same distribution as a classification of establishments. Indeed, the "establishment-firm dichotomy" as it was raised by Carson and Jaszi has a direct parallel in the "individual-household dichotomy" in the household sector. As is true in the case of the firm, the household may cover a number of subunits (individuals) who have diverse characteristics (e.g., age, sex, education, occupation). Although it is possible to classify the household subunits into groups based on these characteristics, it is not possible to classify households in these terms. Nevertheless, such classifications of households are often made. For instance, all households whose head owns a business may be classified as entrepreneurial even if other household members are wage earners. The concern for establishment-firm classification problems and the neglect of individual-household classification problems are, of course, direct reflections of the production focus of the NIPA's.

As Adler and Sunga suggest, the establishment-firm classification problem can only be resolved by utilizing information at a more disaggregated level, where data are available for (1) production and capital formation at the level of the individual establishments owned by the firm and (2) financial transactions and balance sheets at the level of the firm itself. Such microdata sets can, in fact, be constructed, and we are at the present time developing, in conjunction with the Bureau of the Census, a longitudinal file for manufacturing establishments and firms at the microunit level for the period 1972–80. One of the immediate questions for which this microdata set is being used is the one raised by Carson and Jaszi—i.e., analysis of how the activities of the individual establishments contribute to savings of firms and how in turn these savings are related to capital formation at the establishment level. This sort of question obviously cannot be answered satisfactorily by the highly aggregated data in the macroaccounts, and requires the use of microdata. But in order to use the microdata on firms and their establishments to explain the behavior of aggregates in the macroaccounts, the same concepts of saving and capital formation must be used at the microdata and macrodata levels, and the microdata, when combined, must aggregate to the same constructs in the macroaccounts.

B. Sectoring of the economy and integration

1. NIPA sectoring and IEA modifications.—The NIPA sectoring of the economy grew out of the measurement of income originating in the different parts of the economy. The sector accounts in the original 1947 version of the NIPA's were drawn up to show the derivation of national income originating in (1) business, (2) households and nonprofit institutions, (3) government, and (4) the rest of the

world. Nonprofit institutions were grouped with households not only because on a conceptual level they were, like households, considered to be final consumers of goods and services, but also because on a statistical level final consumption was estimated by the commodity flow method, which resulted in a total that could not be broken down between households and nonprofit institutions.

The 5-account system introduced in 1958 dropped the account for the business sector, and reorganized the other sector accounts to display all of their income and outlays, rather than focusing on the derivation of the national income originating in each sector. Nevertheless, the present NIPA's retain the 1947 sector definitions. They continue to provide information on gross product, net product, and income originating in the business sector (BEA tables 1.5, 1.6, 1.9, 1.10, and 1.12), even though they do not include an explicit business sector account. In the industrial breakdowns of product, income, and employment (BEA tables 6.1–6.26), the concept of "private domestic industries" is also introduced; this is broader than the concept of "business sector" in that it includes nonprofit institutions and domestic service workers but it is narrower in that it excludes government enterprises. Neither of these NIPA concepts is fully satisfactory, and the differences between them can result in confusion. On the one hand, the BEA business sector does not in fact represent production units motivated by profit, because it includes government enterprises and the imputed services of owner-occupied housing. On the other hand, the exclusion of government enterprises from the BEA industrial breakdowns of product, income, and employment (despite the fact that these units are included in the BEA business sector) results in underreporting of those industries where government enterprises are important, and the industrial composition of government enterprises remains a mystery. With respect to the household sector, the inclusion of nonprofit institutions reduces the usefulness of the household sector account for those concerned with analyzing household income, consumer expenditure, and saving. It is especially difficult to relate the household account to more disaggregated data, such as the size of distribution of income and the socio-economic composition of the household sector.

For these reasons, the IEA's made the following modifications in the NIPA sectoring:

IEA Concepts	NIPA Concepts
Enterprise Sector	
=	Business Sector
	+ Nonprofit institutions
	+ Domestic service workers
	− Owner-occupied housing
or alternatively—	
Enterprise Sector	
=	Private Domestic Industries
	+ Government enterprises
	− Owner-occupied housing
and—	
Housing Sector	
=	Households and Institutions
	− Nonprofit institutions
	− Domestic service workers
	+ Owner-occupied housing

These sectoring modifications met with considerable opposition from the reviewers. Only Tobin unqualifiedly stated that moving nonprofit institutions out of the household sector was an improvement. Taylor approved, in general, of the modification of the household sector account, but questioned whether charities and foundations should not be treated as financial rather than nonfinancial enterprises. Adler and Sunga agreed that removing nonprofit institutions would improve the household sector, but feared that placing them in the enterprise sector would blur the character of the enterprise sector as being composed of production units motivated primarily by profit. Tice agreed that the changes in sectoring improve the homogeneity of the household sector, but felt that this is at great expense to the usefulness of the enterprise sector. Carson and Jaszi indicated that putting nonprofit institutions in the enterprise sector would increase the heterogeneity of that sector and would have a high cost in terms of the number of additional items required to implement the move. Denison felt that nonprofit institutions are consuming units akin to both households and governments, and, furthermore, that combining them with the producing units in the business sector whose output is normally sold to other sectors, and can therefore be independently measured, would be unsatisfactory for the measurement of productivity.

The majority of the objections to the IEA sectoring modifications centered on their impact on the enterprise sector. The sections below discuss first this general question, and then take up some of the specific points.

2. Heterogeneity of the enterprise sector.—Although one can understand the almost universal desire to define the enterprise sector as a homogeneous grouping of production units motivated primarily by profit, the reviewers' comments seem somewhat incongruous in the context of present BEA practices. In view of the concern for the business sector expressed by many of the reviewers, one would have expected to find that it played an important role in NIPA's. As already noted, however, the NIPA's do not contain an account for the business sector and restrict its role to the presentation of a few summary aggregates. Even there, the NIPA business sector, despite protestations of Denison and of Adler and Sunga, is not restricted to producers selling to other sectors or profit-making producers because it includes both government enterprises and the imputed rental value of owner-occupied housing. In all the tables that present breakdowns by industry, BEA abandons the concept of the business sector and uses instead the concept of private domestic industries, which does include both nonprofit institutions and domestic service workers. Thus, neither of the concepts that are now used in the NIPA's meets the criterion of "purity" set forth by the reviewers. Furthermore, both NIPA categories are already very heterogeneous, covering a wide variety of nonfinancial and financial enterprises organized as cooperatives, mutuals, public authorities, or public corporations. Such organizations may operate primarily for the mutual benefit of the groups they represent by providing goods and

services at lower cost, rather than by maximizing profit. To limit the enterprise sector to a homogeneous group of private profit-motivated organizations would reduce its coverage well below that of either of the present NIPA concepts, and the problem of the treatment of the excluded enterprises would remain.

3. Nonprofit institutions.—Although Carson and Jaszi are quite correct in indicating that additional entries are needed to move nonprofit institutions from the household to the enterprise sector, the information provided by these entries would be useful and is long overdue. It is not merely clutter in the accounts. More information needs to be provided about the operation of the nonprofit subsector of the economy, especially if, with the reduction of the government sector, it is expected to take on expanded functions. Even by BEA's own measure, the gross product originating in nonprofit institutions is equal to or larger than that of the farm subsector, and for the farm subsector, BEA goes to the length of publishing a complete table on farm output, gross product, and income.

The view put forth by Denison that nonprofit institutions are consuming units like households seems to be inappropriate for many nonprofit organizations, such as Blue Cross and Blue Shield, major private universities, and nonprofit private hospitals. These organizations receive their funds from a variety of sources including the sale of their services. In their manner of operation, they are much closer to other private organizations in the same industry than to individual households. Perhaps, as Taylor suggests, some of the nonprofit organizations such as foundations might more appropriately be classified as financial rather than nonfinancial enterprises, but they are clearly enterprises and not households.

4. Owner-occupied housing.—The transfer of owner-occupied housing from the business sector to the household sector caused relatively little comment. Both Taylor and Tice approve of the treatment of owner-occupied housing as a household activity rather than an activity of the business sector—a treatment that, as they point out, is incorporated in the FOF accounts. Taylor commends it as being more in accord with institutional realities. Adler and Sunga were somewhat concerned that the transfer would blur the traditional concept of the household as a consumption unit. This is indeed true, and intentional; the IEA's explicitly recognize that nonmarket production does take place in the household sector.

Carson and Jaszi question whether this change in classification results in saving and investment patterns for the household and enterprise sectors that are more meaningful than those in the NIPA's. From a theoretical point of view, we would argue that the explicit IEA treatment is more informative, because it records the household's costs of homeowning (repair and upkeep, property taxes, and mortgage interest) as household outlays, where they can be analyzed in the context of household behavior. In addition, the IEA treatment is consistent with a balance sheet for the household sector that shows the value of the house as an asset and the mortgage as a liability; to exclude these items from the household balance sheet—as the present BEA treatment requires—is surely unrealistic.

Denison opposes treating owner-occupied housing differently from tenant-occupied housing; he is primarily concerned with the situation where dwelling units are sometimes occupied by their owners and sometimes rented, with the consequence that each time an owner-occupied house is rented it would, strictly speaking, have to be shifted to the enterprise sector. We agree with Denison that frequent shifting would be undesirable, and in such cases of temporary or seasonal rental we would suggest that the house be retained as a household asset. This treatment would mean that only those housing units whose rental is undertaken primarily as a business activity would be recorded in the enterprise sector.

5. Domestic service workers.—The treatment of domestic service workers in the NIPA's is both a triviality and an anomaly. Domestic service, measured by the compensation of domestic service workers, is in the NIPA's the only production taking place in the household. This figure does not, however, reflect all the purchases of domestic services by households. If house cleaners, gardners, carpenters, trash removers, or babysitters are hired on a fee-for-service basis, these transactions are treated as purchases of goods and services, and those involved in providing the services are considered to be self-employed; it is only when their compensation is considered to be "wages" that they are treated as household employees. The proposal in the IEA's was to treat all such providers of domestic services to households as self-employed. Although Denison considers this to be unnecessary and artificial, it seems to us to represent a tidying up of messy detail that has long been overdue. There would be no significant change in the household account; the compensation paid to domestic service workers would still be recorded as a purchase of domestic services by households. In the enterprise account, domestic service workers would be included together with other self-employed persons providing household services.

6. The need for subsectoring.—The logical conclusion to be drawn from the discussion of sectoring is that, in view of the heterogeneous nature of productive activity, subsectoring of the enterprise sector is needed. Such subsectoring was carried out in the fuller version of the IEA's, although space limitations precluded printing data for the subsectors in the SURVEY article, and these data are available on computer tape from BEA. The subsectors of the enterprise sector presented are as follows:

- Enterprise sector
  - Nonfinancial enterprises
    - Corporate nonfarm
    - Noncorporate nonfarm
    - Farm
    - Government enterprises
    - Nonprofit institutions
  - Financial enterprises
    - Monetary authority
    - Commercial banking
    - Other banking
    - Pension and insurance funds
    - Government financial agencies
    - Other financial institutions

C. Microdata and their integration with the accounts

In the IEA presentation, considerable emphasis was placed on the desirability of using the national accounts not only as a conceptual framework for economic data in general, but specifically as a statistical framework for microdata sets related to the sectors and subsectors of the accounts. Only a few of the reviewers commented on this feature of the IEA's. Those who did, raised questions concerning the difficulties of developing appropriate microdata sets, and expressed considerable skepticism as to its practicality. At the same time, one comment noted that this is a "growth industry," and another concluded that this is intuitively the way to go, in spite of its difficulties.

1. Microdata for the household sector.—Denison states that the IEA's not only fail to meet the objective of providing a framework for household microdata, but the objective itself is a chimera. This view is based on two arguments. First, there will be differences among microdata sets in the definition of the reporting unit—households, families, dwelling units, individuals, taxpayers, etc.—so that there is no general concept they can follow. At best the household account can be consistent with only one microdata set, and for all others a bridge table would be needed; therefore, why not use a bridge table for all sets? Second, Denison points out that bridge tables will also be needed because aggregates of microdata treat on a combined or gross basis items that are netted or consolidated in the national accounts.

We would argue that this view reflects a fundamental misunderstanding of our objective. Just as the aggregate national accounts do not conform to any specific raw tabulation, there is no expectation that the microdata sets underlying them should conform to any specific single survey or other source. Rather, the principle is that the macroaccounts should be viewed conceptually as the aggregation (including consolidation or netting where appropriate) of a theoretical set of microaccounts. Given appropriate data sources, the national accountant or others should be able to construct, by appropriate adjustment of the available microdata from many different sources, microdata sets approximating the theory that would underlie each sector of the national accounts. A relatively modest household microdata set that is integrated with (i.e., consolidates to) the household sector of the national accounts could yield useful disaggregations of the major items of income and expenditure, and provide related social and demographic information. The fact that there exists a variety of other unadjusted microdata sets is aside from the issue, just as is the existence of unadjusted aggregate data.

In terms of reporting unit, the important issue is that the microdata set that is to underlie the household sector have the same coverage as the household sector of the national accounts. Some of the reporting units mentioned by Denison, such as taxpayers, would clearly be inappropriate as the basis for constructing a microdata set to represent the household sector, because they cover only part of the population included in the household sector of the national accounts. A comprehensive microdata set for the household sector containing data relating to all individuals in the population, in which the attributes of the individuals are specified, would permit the extraction of data on the basis of any reporting unit for which information exists (e.g., taxpayers, wage earners, school children), and users would be able to analyze the relation of various reporting units to each other. As previously noted, the problem here is directly analogous to the establishment-firm relation for enterprises. One of the functions of the microdata set is to clarify the relations among all of the attributes of the microunits involved.

Carson and Jaszi and also Denison raised questions about institutional populations such as soldiers and residents of prisons and sanitariums. These people do not really cause any conceptual problems; to the extent that such groups receive income and purchase goods and services, their income is included in household income and their purchases are included in household expenditures. They should, therefore, be included as identifiable units in the household microdata. The goods and services provided to them free of charge should, of course, be recorded as part of the expenditures of the governments or nonprofit institutions providing them.

Bridge tables are useful and appropriate in many circumstances. Thus, for example, BEA Table 3.18B, showing the relation of Federal Government receipts and expenditures in the NIPA's to the Unified Budget, establishes important linkages between these two kinds of information. Where there are different uses of data calling for different tabulations, such bridge tables showing the relation between the aggregate tabulations are often useful. But this is quite different from using bridge tables to adjust raw tabulations of microdata at the aggregate level. As is noted below in connection with establishment microdata for the Census of Manufactures, adjustments made to tabulations of microdata at the aggregate level are not as satisfactory as incorporating such adjustments into the microdata itself. The reason for this is that different aggregations of the microdata will add up to the correct control totals only if the adjustments are made at the microdata level; if the adjustments are not carried back to the microunits they will have to be done over again whenever a new tabulation is made.

With respect to Denison's second point, bridge tables would in general not be required in those instances where the aggregated data are shown on a consolidated or net basis and the microdata provide gross data. The present government sector in the NIPA's is on a consolidated basis, whereas the subsector accounts for the Federal Government and for State and local governments show the transfers between these levels of government on a combined basis, and no bridge table is provided or required. It is easy to move from a more to a less gross basis as data are aggregated. What is not possible is to go the other way; if flows are shown combined or gross at the aggregate level, it is necessary that they also be available on this basis at the microdata level.

2. The enterprise sector and statistical consistency.—Adler and Sunga cite the difficulties even in a fully integrated statistical agency like Statistics Canada of linking microdata originating from differently defined units of collection (i.e., establishments

and firms), and suggest that the resource costs are more than can be faced with equanimity. They note that even such seemingly simple steps as ensuring that establishments or firms in sets of data orginating from different surveys are always classified in the same industry and location are often frustrating and always time- and resource-consuming.

These problems, however, are not problems that are restricted to the development of microdata sets. Although the problems become glaringly obvious in the microdata context, they are equally important, and equally present, in the context of the aggregate accounts. Thus, for instance, if one source is used to make estimates of output by industry and another source is used for employment and hours, inconsistency in the industrial classification of establishments or firms will result in errors in the measurement of productivity by industry. It is not true, as the observations of Adler and Sunga might imply, that merely because the errors caused by inconsistent classification of industry and location in different sources are not obvious in macrodata, such errors can be swept under the rug. Nor can it be assumed that they will somehow average out. What is required for coordinating different sources of data is, of course, a complete industrial register that lists all firms, their establishments, and the location and industrial classification of each establishment. Most countries have come to recognize that such a register is a prerequisite not only for providing adequate sample frames, but also for coordinating statistics from different sources. The U.S. Census Bureau has begun to develop such a register, but confidentiality restrictions have so far prevented its use by other statistical agencies. The development of proper statistical procedures may be frustrating and even costly, but the confusion that results from the lack of coordination is even more frustrating and far more costly to users as well as producers of statistics.

3. The availability of microdata.— Consistent with their skepticism concerning the possible integration of the data in *Social Indicators* with the national accounts, Carson and Jaszi do not believe that the quantity of usable microdata is as large as we suggested, and, given the substantive difficulties and costliness, they are less optimistic about the prospects for integrating microdata and macrodata. While conceding that the possibility may exist for households, they state that if the prospects and problems of the use of microdata for the enterprise and government sectors had been examined more thoroughly (e.g., the previously noted establishment-firm dichotomy and also differences in business accounting practices), the provision of a framework for microdata might have been given a smaller weight in the redesign.

With respect to the general question of the quantity of usable microdata available, it is, of course, true that all national accounting estimates

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Computer Tape for IEA Tables

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National and sector accounts, 1947–80

1.1	Gross National Product
1.2	Relation of National Income, Net National Product, and Gross National Product
1.3	Gross National Product (1972 Dollars)
1.10	Enterprise Gross Product Account
1.40	Household Current Income and Outlay Account
1.50	General Government Receipts and Current Outlay Account
1.60	Rest of the World Current Account
2.1	Capital Accounts for the Nation
2.2	Stock of Reproducible Goods in Constant Prices (1972 Dollars)
2.3	National and Sector Capital Accounts in Constant Purchasing Power (1972 Dollars)
2.10	Enterprise Capital Accounts
2.40	Household Capital Accounts
2.50	Government Capital Accounts
2.60	Rest of the World Capital Accounts

Subsector accounts

Gross product accounts

1.20	Nonfinancial Enterprise (1959–77)
1.21	Corporate Nonfarm (1959–77)
1.22	Noncorporate Nonfarm (1959–77)
1.23	Farm (1959–77)
1.24	Government Enterprise (1959–77)
1.25	Nonprofit Institutions (1959–77)
1.30	Financial Enterprise (1959–75)
1.31	Monetary Authority (1959–75)
1.32	Commercial Banking (1959–75)
1.33	Other Banking (1959–75)
1.34	Pension and Insurance Funds (1959–75)
1.35	Government Financial Agencies (1959–75)
1.36	Other Financial Institutions (1959–75)

Receipts and current outlay accounts

1.51	Federal Government (1947–80)
1.52	State and Local Governments (1947–80)
1.53	State Governments (1959–75)
1.54	Local Governments (1959–75)

Capital accounts

2.20	Nonfinancial Enterprise (1959–77)
2.21	Corporate Nonfarm (1959–77)
2.22	Noncorporate Nonfarm (1959–77)
2.23	Farm (1959–77)
2.24	Government Enterprise (1959–77)
2.25	Nonprofit Institutions (1959–77)
2.30	Financial Enterprise (1959–75)
2.31	Monetary Authority (1959–75)
2.32	Commercial Banking (1959–75)
2.33	Other Banking (1959–75)
2.34	Pension and Insurance Funds (1959–75)
2.35	Government Financial Agencies (1959–75)
2.36	Other Financial Enterprises (1959–75)
2.51	Federal Government (1947–80)
2.52	State and Local Governments (1947–80)
2.53	State Governments (1959–75)
2.54	Local Governments (1959–75)

are in large degree based on tabulations of microdata, and these basic sources are prime candidates for the construction of microdata sets that are integrated with the national accounts. In some cases, these may be administrative data provided by the Internal Revenue Service, the Social Security Administration, or other regulatory or statistical agencies. The raw tabulations are not usually incorporated directly into the national accounts estimates, because adjustments for conceptual differences, underreporting, or incomplete coverage are generally needed. It is, of course, necessary that the same adjustments also be introduced into the microdata if they are to be coordinated with the accounts, but the experience of the statistical collection agencies has indicated that such procedures are both feasible and highly useful for the data collection process itself. Thus, in connection with the Census of Manufactures, it is now customary to introduce into the records of the individual establishments the necessary edit corrections, imputations for missing data, and other adjustments so that the final computer tabulation will be exactly consistent with what is published.[3]

With respect to the specific question of microdata for establishments, because of the relatively small number of large enterprises and establishments that account for most of the production taking place in the United States, it is both feasible and desirable to build comprehensive microdata sets by using exact matching. As already noted in the discussion of the establishment-firm classification problem, a longitudinal microdata file for firms and establishments has been developed for the manufacturing sector for the period 1972–80. This file utilized exact matching and contains data for approximately half a million manufacturing establishments for the census years 1972 and 1977, and about 80,000 establishments for the other years covered by the Annual Survey of Manufactures.[4] A microdata base being developed by the Small Business Administration covers all firms and establishments in the economy (including nonprofit organizations and family businesses). A number of publicly available sources, such as the Dun and Bradstreet Market Identifier File (credit listings) and the Market Data Retrieval File (yellow pages listings), have been merged and matched to produce a Master Establishment List of approximately 8 million establishments. Further research has been done to develop an Establishment and Enterprise Microdata File (about 4.7 million establishments), which provides information on the relation between enterprises and establishments.[5] The file is being validated by making comparisons, within the proper confidentiality safeguards, with government administrative files relating to corporate and noncorporate tax returns and employer social security and unemployment insurance files. Finally, more detailed financial data (income accounts and balance sheets) are being merged into the file on an exact match basis for all those businesses for which such data are available (about 800,000 cases). All publicly traded companies (approximately 10,000) are, of course, included. The objective of this research is the development of a totally integrated and weighted sample of 200,000 to 300,000 enterprises that will provide employment, sales, and financial data on a longitudinal basis.

With respect to the government sector, the feasibility of the development of microdata has also been demonstrated. John Quigley and James Trask at Yale University, with National Service Foundation support (and BEA assistance), undertook to develop microdata sets for government units that were fully integrated with the government sector of the NIPA's. The basic source for the microdata set was the data tape from the Census of Governments for 1972, which provided individual accounts for 75,000 budgetary units; these units included not only Federal, State, and local governments, but also other public bodies such as public authorities, regional agencies, and school and water districts. The microaccounts covered the sources of revenue by type and the outlays by function, and also provided capital accounts for (1) the Federal Government, by States and the District of Columbia (51); (2) State governments (5); (3) county aggregates of local governments (3,118); (4) standard metropolitan statistical areas (100 largest); (5) separate accounts for central cities, suburban rings, and regional governments (for largest 100 standard metropolitan statistical areas).[6] This project established the feasibility in terms of cost and validity of using the Census of Governments data to develop a microdata set of government units that is integrated with the national accounts.

With respect to household microdata, the view of Carson and Jaszi that the development is substantively difficult and costly stems, no doubt, from BEA's experiences in the development of the estimates of the size distribution of personal income using both exact and statistically matched microdata. This experience underscored the need for a household sector in the national accounts that is conceptually compatible with microunit information. Much of the difficulty BEA encountered arose, first, because it was necessary to develop, within the personal income concept, another concept of family income, which could be distributed by size. Second, it should be borne in mind that the microdata effort in which BEA engaged was pioneering research, and much was learned in the process; certainly those who were directly involved in that research have a much more positive view of the level of success achieved and the future potentiality of integrating household microdata and the national accounts. Finally, the question of cost should be kept in perspective. In absolute terms, the microdata work in BEA was quite modest, and relative to the total of all BEA activities it was almost imperceptible.

3. Preston J. Waite, "Imputation Methodology, Economic Censuses and Surveys," prepared for the Census Advisory Committee Meeting, October 8, 1982.

4. Richard and Nancy D. Ruggles, "The Development and Use of Longitudinal Establishment Data," report on workshop held in Reston, Va., January 14–15, 1982.

5. *The State of Small Business: A Report of the President*, March 1982, Appendix B, The Small Business Data Base and Other Sources of Business Information: Recent Progress.

6. John Quigley, "The Spatial Distribution of Public Sector Activity: A Preliminary Report," *Proceedings of the 1976 General Conference of the Society of Government Economists* (Washington, D.C.: Society of Government Economists, 1977). John Quigley (with Gail Trask and James Trask), "Income and Product Accounts for the Local Public Sector," Institution for Social and Policy Studies, Working Paper 795, Yale University, 1977.

II. The Recording of Transactions

A. The transactor approach

THE IEA's view the national accounts as being composed of sets of sector accounts, which in turn represent aggregations or consolidations of sets of microaccounts for individual transactors. At the sector level of aggregation, the transactors are classified into enterprises, households, government, and the rest of the world. The accounts for both the individual transactors and for the sectors of the economy relate to productive activity, current income and outlays, capital transactions, revaluations of balance sheet items, and balance sheets. This is the basic framework used for the recording of transactions in the IEA's.

This view of the accounting system is strongly opposed by Marimont, who argues that the national accounting structure should be designed in accordance with what is needed for a comprehensive understanding of how the economy operates. After the total system is designed, Marimont suggests, the national accountant can then develop methods for adapting the data for individual transactors. Marimont does not, however, suggest how a system developed in the way he suggests would differ from one conceptually based on individual transactor accounts, nor does he indicate what criteria he would use. The history of the development of the BEA accounts suggests that he may have had in mind constructing the system around the derivation of a few aggregates such as national income, and saving and investment. This was the original basis of the 1947 NIPA's, and still plays a large role. The transactor approach of the IEA's subscribes to Marimont's principle that the accounting system should be designed in terms of what is needed for a comprehensive understanding of how the economy operates, but it suggests that this can best be accomplished by providing organized and systematic information on the transactions and balance sheets of different groups of transactors. As Tobin points out, the existing NIPA's do not in fact provide a satisfactory conceptual framework for the tracking and consistent evaluation of stocks and flows needed for understanding economic behavior.

In implementing the transactor approach, the IEA's made a sharp distinction between actual market transactions and imputations for nonmarket activity. Many of the reviewers raised questions about the definition of imputations, as well as about the usefulness of this separation. In the discussion of financial intermediaries, Annex 1 of the IEA presentation leaned heavily upon how the transactors themselves viewed the transactions. Carson and Jaszi, Denison, and Marimont all questioned this "transactor approach." Denison pointed out that different transactors may view the same or similar transactions quite differently, and Carson and Jaszi and also Marimont commented that the IEA's did not consistently embody this principle.

In view of the questions that have been raised about the definitions and principles that underlie the transactor approach, a reexamination of the treatment of specific imputations and transactions is in order. It was certainly not our intention, in introducing the transactor approach, to record the same or similar transactions differently based on how individual transactors view them.

B. Imputations

Carson and Jaszi, Denison, and Marimont raised many objections to the IEA treatment of imputations. Carson and Jaszi felt that there are conceptual problems in determining what should be considered to be an imputation. Denison objected to assigning the market transactions aggregate a central role because he felt that there is no simple and noncontroversial concept of money income and expenditure. Marimont found the treatment of imputations troublesome and indicated that there is a need to define more precisely what kinds of transactions are to be classified as imputations. Finally, all of these reviewers agreed that the separation of nonmarket imputations resulted in more complex accounts, which were less convenient and informative than the NIPA presentation.

In the IEA's, *nonmarket* imputations relate to activity that is not measured by actual market transactions; a clear example of a nonmarket imputation is the services of owner-occupied housing, which BEA values at its equivalent space rental value. This IEA definition of nonmarket imputation contrasts with the more comprehensive BEA definition of imputation, which includes, in addition, some activities (e.g., financial services) that are measured in terms of the (market) costs of providing them.

Carson and Jaszi suggest that the separation of market transactions and nonmarket imputations in the IEA's was primarily motivated by the belief that, compared to actual market transactions, the estimates for nonmarket imputations were relatively speculative. This is a very considerable oversimplification of our position. We recognize (1) that there are actual transactions in the accounts that are speculative because reliable data are not available for estimating them, but we would not favor classifying these transactions as nonmarket imputations. We also recognize (2) the controversial nature of the treatment of certain actual transactions, such as the cost of financial services, but again this is no reason to group such transactions with nonmarket activity. We agree (3) that the concepts of economic depreciation and household capital consumption are conceptually somewhat shaky, quite apart from the question of the availability of data; in this case we feel that these are nonmarket imputations for which there is no transactions counterpart, and they should be embodied in the accounts in a way that does not impinge upon market transactions measurements. We do not feel, however, (4) that food and fuel produced and consumed on farms should be classed as market and included in farm market production and consumption expenditures by households, merely because it is considered to be a "hard" estimate. Finally, we would argue (5) that the separation of nonmarket imputations is not particularly complex and that it is analytically useful.

1. The accounts as a framework for market transactions.—The primary function of the national income and product accounts has been to provide a framework for displaying the interactions of different sectors of the economy with one another in terms of the market transactions in which they engage. For analyzing the behavior of prices, output, and employment, it is this network of market transactions that is the prime focus of attention. There are, of course, a great

many transactions for which it is difficult to obtain sound statistical data. In such instances, the national accountant attempts to make the best estimate possible, recognizing that omission of a legitimate entry in a full set of market transactions would result in a greater error than including an inaccurate estimate. Thus, BEA does include estimates of such items as tips paid to waiters and waitresses, and the payments made to babysitters. It was not the intention of the IEA's, and we agree that it would be quite inappropriate, to classify transactions as market or nonmarket on the basis of reliability.

2. Market imputations in the accounts.—Market imputations are defined in the IEA's as activities that are valued in terms of their costs of production rather than in terms of the market value of their sale. Examples of market imputations are the measurement of the value of (1) financial services provided by banks, (2) the change in inventories, and (3) final consumption expenditures of the government.

With respect to the treatment of financial services, the problem is more one of where to draw the boundary between intermediate and final product than of market versus nonmarket activity. The decisions may be controversial, but the measurements involved are all market-determined. In the United Nations SNA, all financial services are treated as an intermediate product, whereas BEA treats part of them as final product. Financial services are not the only example of this sort of problem. As was suggested in the discussion of the IEA's, there are other kinds of expenditures that BEA currently treats as intermediate that might be considered final expenditures; these include research and development, radio and television, and other consumption provided by enterprises. Conversely, as Tobin suggests, some of the current expenditure of government might be considered to be intermediate rather than final. Such shifts in the production boundary may well occur within the framework of a system of accounts drawn up in terms of market transactions, without involving any nonmarket imputation.

Denison does not consider inventory change to be based on market transactions, and he states that including it in income results in abandoning the market transactions concept. From the point of view of the IEA's, however, inventory change is based on market transactions, because it is the difference between costs of production and sales, both measured by market transactions. Even the inventory valuation adjustment is merely a correction in the application of accounting methods—presumably there are accounting records, and there are market transactions on which the correction is based.

Carson and Jaszi and also Denison took the position that government consumption expenditures should not be considered an imputation, but rather should be viewed as final purchases. This seems very reasonable, and IEA's do not preclude such a treatment because government expenditures are considered to be market transactions. The United Nations SNA does set up a production account for government, in which its purchases from business and the compensation of government employees are considered to be inputs that in turn are used to produce government outputs. United Nations SNA thus treats the purchases from business as intermediate goods, and government final consumption is treated as an imputed purchase by the government of the output it has itself produced. While technically correct, this United Nations SNA approach is awkward and for most government final consumption unnecessary, and the alternative BEA explanation is simpler. The BEA interpretation is not, however, in conflict with IEA.

3. Economic depreciation.—The IEA's do not consider that economic depreciation is a market transaction, and recognizes this by building the national income and product account and the sector current accounts around gross market transactions. Thus, gross saving in each sector account is the balancing item, representing the difference between total current market receipts and total current market outlays. As a balancing item, it is independent of the estimate for economic depreciation. This does not mean, as Marimont suggests, that capital consumption is treated as a market transaction in the household account; rather, in this context, capital consumption and net saving are essentially memorandum items attached to total gross saving in each account, showing its possible division into these two components.

4. Food and fuel produced and consumed on farms.—Carson and Jaszi indicate that the estimate of food and fuel produced and consumed on farms is not so speculative that it requires a different kind of statistical estimate. The IEA's classed it as a nonmarket imputation for two reasons. First, it is production and consumption that does not go through the market, and it is not at all clear either conceptually or statistically just what is or should be included under this rubric. For example, should kitchen gardens and poultry raised by farmers be included? If not, on what grounds should they be excluded if other food and fuel is included? If they are included, why should not the kitchen gardens and poultry raised by nonfarmers also be covered? (The latter figure really would be speculative!) Should the processing of the food, i.e., the slaughtering and curing of meat and canning of fruits and vegetables, also be included? If farm wives' canning activity is covered, should that of other housewives not also be included? Second, it is not clear what value should be placed on such home-consumed production—the opportunity cost that could be obtained by selling the product, the input costs, the price the farmer would have to pay for the product if he bought it, and the value which the farmer would himself assign to the output as a consumption good all are possibilities. Although farm income in kind is less than 1 percent of farm gross output (under $1 billion in 1980) and its estimation may seem to be a trivial matter, these questions of valuation are precisely the same as those that arise in connection with the valuation of owner-occupied housing, and that estimate is not trivial in size.

5. The separation of nonmarket imputations.—It is true that separating market transactions and nonmarket activity increases the complexity of the accounts and makes them more difficult for those who are accustomed to the NIPA's. But this increase in complexity can easily be exaggerated, and it is the market transactions accounts that represent the core of the system; these accounts record all transactions between different transactors. The imputations for nonmar-

ket activity are estimates of the production and consumption activity that is internal to a sector and does not go through the market. The NIPA's can neglect the distinction between market and nonmarket activity because they postulate a single correct specification of the production boundary—one that includes exactly the correct amount of nonmarket activity. Many proposals are now being made, however, to extend the conventional production boundary to include such things as the services of government and consumer durables and the nonmarket activity of the household. If consideration is given to any of these, it will become increasingly important to preserve intact the core set of transactions relating to market activity. It is, perhaps, better to build in the possibility of some flexibility, rather than to be forced to cling to an outmoded definition of the production boundary beyond its useful life.

C. Benefits in kind

Certain benefits in kind provided by business are treated in the NIPA's as income received by the beneficiaries, and correspondingly, as expenditures by them. Thus, some of the financial services provided by banking institutions are considered to be income in kind received by households and government and also expenditures by them for these services. Similarly, fringe benefits in kind that employers provide to their employees are included both in other labor income and in expenditures and personal saving of households. In the IEA system, however, benefits in kind are treated as final expenditures of the provider of the benefit, and no attributions of income and expenditure are made to the accounts of those who theoretically benefit. Both financial services provided by banking institutions and the fringe benefits in kind provided by private employers are treated in the IEA's as enterprise final consumption expenditures.

Part of the rationale for this treatment is that the recipients might not recognize these benefits in kind as income. In light of the comments of the reviewers, this rationale requires reexamination. Carson and Jaszi argue that the significance of many fringe benefits in collective bargaining is prima facie evidence that employees not only recognize them, but also attach considerable importance to them. It is apparent, however, that workers may recognize and attach value to many other improvements in working conditions, such as safety, working environment, and hours, and yet BEA does not treat these amenities as part of personal income. Nor does BEA treat benefits in kind provided by government, such as education, public health, and community services, as part of personal income and personal consumption expenditures, although again individuals receiving them may recognize them as benefits. In view of this murkiness, there is much to be said for considering all benefits in kind to be final expenditure of those making the expenditures, irrespective of whether individuals recognize or attach importance to their receipt. The analyst can then make further attributions to the groups he considers to be the beneficiaries, if he wishes. The United Nations SNA, for instance, includes a supplementary concept called "total consumption of the population," in which all of these attributions are made. But this is provided in addition to, not instead of, household consumption expenditure.

D. Pensions and insurance

In the IEA's, the assets of pension funds and life insurance companies are attributed to their prospective beneficiaries only to the extent that they have a cash surrender or loan value. Otherwise, households are not credited with "wealth" representing the capital value of future pension benefits. Although Taylor and Tobin find this general treatment useful and satisfactory, Denison and Gorman take issue with it.

1. Revised estimates.—Since the publication of the "Integrated Economic Accounts," Gorman has correctly pointed out that, in transferring fringe benefits in kind from household to enterprise consumption, the IEA's should have deducted from household consumption expenditures only the cost of services provided by pension and insurance funds. What the IEA's did deduct was not only these services but also the net addition to pension and insurance reserves. These corrections affect enterprise consumption, household consumption, and household gross and net saving. The published and the revised estimates are given in table 1.[7] These revisions do not affect the balance sheet estimates for either enterprises or households, because the balance sheets were based on FOF data. They do, of course, affect the residual discrepancy between net saving as derived from the balance sheet and as derived from the current account, which was given as part of the addenda to the household balance sheet.

2. Pensions and life insurance.—Denison considers that all private pension and life insurance reserves (as well as the saving of nonprofit institutions) belong in the household sector, because they are all of value to households as prospective beneficiaries. Even term policies or unvested pension plans with no cash surrender value, he feels, may be currently valuable to the holder because they may make it possible to obtain further insurance without examination or at lower cost. The IEA view, in contrast, is that households do not in fact own or control the noncashable portion of private pension and insurance reserves, and therefore this part of the reserves should be excluded from their balance sheets. Although the households may be beneficiaries of pensions or insurance in the future, the IEA's do not record this as household income until such time as it is actually received. As for the view that term insurance and unvested pension plans may be currently valuable to the owner from the point of view of buying insurance, so is being a veteran, young, or female, and these factors are not reflected in the accounts.

Gorman opposes the proposed change on the grounds (1) that life insurance carrier saving, and therefore corporate profits, would be increased by the excess of the increase in aggregate reserves over the increase in cash surrender values; and (2) that he

7. BEA does not prepare estimates of pension fund operating expenses, because they are not needed for the NIPA's. Preparation of reliable estimates at the present time is not possible because (1) insured pension fund operating expenses are buried in the data for life insurance carriers, and (2) there is evidence of a massive shortfall in the existing Securities and Exchange Commission data on noninsured pension plans. Under these circumstances, the estimates of pension fund operating expenses for the IEA's were based on a simple-minded extrapolation of the 1977 ratio of pension fund operating expenses to employer contributions; data for the ratio are from an Internal Revenue Service tabulation of Form 5500 published in the *Statistics of Income Bulletin*, Volume 1, No. 4 (Spring 1982).

Table 1.—Revised Estimates Resulting From Correcting Pension and Insurance Data

[Billions of dollars]

	Enterprise consumption expenditures		Household consumption expenditures		Household gross saving		Household net saving	
	Published	Revised	Published	Revised	Published	Revised	Published	Revised
1969	39.6	34.9	386.2	391.2	129.5	124.6	58.2	53.3
1970	46.0	40.9	418.0	423.1	143.2	138.1	64.1	59.0
1971	52.0	45.2	443.6	450.4	164.1	158.3	79.6	73.8
1972	59.7	52.6	477.5	484.6	173.1	166.0	80.2	73.2
1973	67.0	58.2	521.4	532.6	212.5	203.7	111.6	102.8
1974	79.2	69.0	576.2	588.4	218.3	208.0	104.2	94.1
1975	92.5	80.1	628.5	641.0	240.8	228.6	111.9	99.6
1976	101.1	86.2	688.4	703.3	251.8	236.7	109.0	94.1
1977	120.5	103.7	749.2	766.3	271.2	254.1	112.5	95.5
1978	139.2	120.2	829.4	848.6	296.1	279.1	120.1	103.1
1979	154.9	135.3	935.3	954.9	319.4	299.6	116.5	99.0
1980	174.8	154.1	1,052.7	1,072.4	324.5	303.8	97.2	77.2

is not aware of any aggregate data on cash surrender value. With respect to the first point, there is no necessity for increasing corporate profits by the excess in aggregate reserves; if indeed the excess aggregate reserves are actuarially or legally required, they represent a legitimate ear-marked reserve that would not be available for distribution as profits to the stockholders, although they would still constitute part of gross saving. With respect to the second point, although there may be no readily available aggregate data on cash surrender value, insurance companies do provide their policyholders with this information, and this can be used to develop the necessary aggregate estimates.

Denison questioned the transfer of government pension reserves from the government to the enterprise sector. These reserves largely pertain to State and local government employees, and the transfer reflected the fact that the employee pension funds of State and local governments are generally held by government financial enterprises. It is debatable whether these pension funds should be classified with other pension funds or with other government financial institutions, but they should clearly be a part of the enterprise sector rather than of government. The IEA's did not intend to mediatize the Federal Government's retirement system through the pension and insurance sector, and Taylor's point in this case is well taken.

Taylor raised a question about the possibility of estimating unfunded liabilities of retirement systems, i.e., the difference between the present value of future payments due from retirement systems and the capital value of the assets of the systems. He recognized the asymmetrical nature of such estimates; they have important implications for employer groups supporting such systems but may have little meaning for workers covered by the plans because they are illiquid and are fairly abstract concepts. For this reason, he suggested including such estimates as peripheral or memorandum information without incorporating them fully into the accounts. Furthermore, he felt that Social Security plays a role for individuals parallel to that of retirement systems, and its capitalized liabilities might be included in the memo table even though Social Security wealth is not capitalized in the household account. At first glance, such an approach seems both reasonable and attractive, but the highly speculative nature of the estimates becomes evident when one recognizes the extent to which assumed future changes in the price level and the interest rate dominate the results. In the case of Social Security liabilities, it would also be necessary to forecast the ages at which people will retire in the future, the effect of other related government programs and private pension plans, and probable changes in entitlements. Furthermore, it would not be appropriate to capitalize Social Security liabilities without at the same time capitalizing the future stream of Social Security revenues, and this would involve forecasting Social Security tax rates, wage rates, and employment. One needs only to refer to past estimates relating to the future of the Social Security System to see that such estimates are different in kind from the reporting of past events with which the accounts are concerned.

3. Fire and casualty insurance.—IEA Annex 1 considered the treatment of fire and casualty insurance in the accounts. The IEA's agree with the NIPA's that the value added of fire and casualty insurance companies is correctly measured by net premiums (gross premiums minus claims paid). Annex 1 raises the question, however, as to whether this is also the correct measure for computing value added of a firm purchasing fire and casualty insurance, or whether this cost should be measured by the gross premium. Gorman emphasizes that all accidental damage to fixed capital, whether insured or not, is included in the BEA accounts in capital consumption allowances. This means, in fact, that what are capital losses to individual firms are written off at the aggregate level as capital consumption. If there were no insurance at all in the economy, this practice would be equivalent to including in each firm's capital consumption allowance a charge equivalent to self-insurance against accidental damage, which for the economy as a whole would equal the accidental damage actually occurring. In an economy where all firms were fully insured, BEA's allowance for accidental damage plus net premiums paid would be equal to gross premiums paid. The net premiums paid by firms to insurance companies would then appropriately represent the cost of the services of the insurance industry for spreading these risks. The question that remains, however, is whether the BEA treatment, which was designed for consolidated aggregate income and product accounts, is also appropriate for the IEA system, which is based upon production accounts and balance sheets drawn up at the firm and establishment levels. From this point of view, it would seem more suitable that the actual gross premiums paid by a firm be treated like any other item of current cost, and that the losses due to accidental damage and the reimbursement for such losses paid by insurance companies be treated as adjustments to the balance sheets rather than to the production account.

4. Health insurance.—With respect to health insurance, Gorman indi-

cates that the BEA procedure is based on the principle that medical consumption should be shown in the personal income and outlay account when the consuming individual decides which doctor or hospital shall provide the service. For this reason, BEA includes medical expenditures financed by the government under the Medicare program in the personal income and outlay account. The IEA's, in contrast, take the position that when the government sets the standards, circumstances, or conditions under which expenditures are to be made and requires accounting for reimbursement, the reimbursements should be considered to be government expenditures and treated as the provision of benefits in kind. In the IEA's, transfer payments from government to households are restricted to cash payments that do not require evidence of expenditure for reimbursement. On this basis, the medical expenditures financed under the Medicare program were considered to be government expenditures. In the case of medical care paid for by an insurance policy purchased by a household, only the premium is considered in the IEA's to be a household expenditure. Similarly, the premium paid by employers for health insurance for their employees is treated as a benefit in kind included in enterprise consumption expenditures. Gorman suggested that this would lead to double counting of final consumption, but it does not. The sum paid to the medical provider by the insurance company would be an intermediate product.

E. Interest

Although the IEA's retained the BEA net interest approach, in Annex 1 on financial intermediaries we raised a question as to whether that approach is really appropriate for the measurement of output and in the treatment of interest payments by households and government. We suggested that consideration be given, instead, to treatment of interest as the purchase and/or sale of a service, similar to BEA's treatment of rent. Adler and Sunga indicate that they would not be averse to seeing the logic of such a treatment followed to its conclusion.

Denison does have some misgivings about the BEA treatment of consumer interest, but he does not believe that its inclusion in personal consumption expenditures and output would help; in particular he raised a question about deflation, wondering how in a constant-dollar series the inclusion of consumer interest would resolve the trouble introduced by prices that are raised to cover implicit credit costs. As Denison implies, the implicit credit costs are already included in the price indexes. The price a consumer pays for a product covers a variety of conditions of sale, including credit arrangements, delivery, and refund policy. Under these conditions it does seem appropriate also to take explicit interest costs into account.

Gorman notes that the treatment of interest as a cost of production would have the consequence that the measure of a firm's output would be a function of the distribution between borrowed funds and equity capital. A firm that borrowed part of its capital would, other things being equal, have a lower value added than a firm that operated entirely on equity funds. Gorman does not believe that such a measure of value added would be interesting. Yet the question of borrowing versus the use of equity capital is directly analogous to that of producers who rent the buildings and equipment they use instead of owning them; those who rent will have a relatively smaller value added than those who own their buildings and equipment. The distinction, in both cases, seems entirely proper.

Gorman also, like Denison, has difficulty with the concept of deflation of interest as a service. If interest were treated as a cost, a rise in the interest rate would, ceteris paribus, reduce current-dollar value added, but the constant-dollar value added would be unchanged. Consequently, the implicit price deflator of value added would fall. Gorman says that he does not understand what such a decline in the implicit deflator would mean. This is, however, not really an anomaly. When interest is treated as a cost of production, a change in its price would have the same effect on deflation as a change in the price of any other element of cost. For example, if the price of raw materials rose, other things being equal, value added would decline but constant-dollar value added would remain the same, leading to a decline in the implicit deflator of value added. This outcome is the result of using double deflation methods and is to be expected.

Perhaps for most users the most questionable aspect of treating interest as a payment for a service relates to government interest. Government deficits that require borrowing—and therefore the payment of interest—may result from a decline in revenues due to recession, and may have no observable counterpart in the physical output of goods and services. In such a situation, however, payments of interest may be more in the nature of a government expenditure not dissimilar to a public works program, designed to stimulate the economy. When government borrowing is an element of fiscal policy, such as borrowing funds from producers and consumers in wartime in order to reduce the volume of their expenditures in the economy, it can be argued that those lending the money are indeed performing a service by refraining from spending some of the income they have received. If governments borrow for the purpose of capital formation, they are operating in the same manner as business firms, and those providing the necessary funds to permit the capital formation can be viewed as contributing a service for which interest represents a legitimate payment.

F. Gross capital formation and saving

The IEA's expanded the NIPA concept of gross capital formation by including government purchases of structures and durable goods, personal consumption expenditures for durable goods, and the nondurable goods that are added to household and government inventories. Surprisingly, the inclusion of government capital formation elicited relatively little comment. Tice pointed out that the United Nations SNA recognizes government capital formation, and that it might be useful for the NIPA's to do so. Tobin went further and stated that crediting governments for the value of their physical assets is an accounting reform long overdue in this country.

The IEA treatment of household purchases of durable goods as capital formation is in accord with the FOF treatment, and is generally approved of by Taylor and Tice. Marimont, in commenting that the IEA's did not consistently embody the transactor approach, remarked that the IEA treatment of household durables leads to household saving that few households are likely to recognize and that even fewer lending institutions would give much weight to in evaluating the credit worthiness of a householder applying for a loan. But the purchase of durable goods such as an automobile or house furnishings is often recognized as a capital expenditure by householders. The saving for such a purchase may occur in advance as the householder accumulates the required funds, or the purchase may be financed by a loan. When there is a loan, the lending institution does indeed recognize that it is for a capital expenditure, and it is shown in the household accounts as saving when it is paid off. As has been pointed out above, however, the recording of transactions in the accounts should not depend solely on how individuals view the transactions, but rather on what is appropriate for the analytical usefulness of the accounts. The primary reason for treating household durable goods as capital assets on the balance sheets of households and depreciating them over the period of their economic life is that they last for more than one accounting period.

Whether an estimate of net imputed income should be included for consumer durables, as it is for owner-occupied housing, is a somewhat more debatable issue. Denison questions such an imputation on the ground, among other reasons, that it differs from the treatment of government durables. There is much to be said for this position—but this same argument also applies to the net imputed income estimate for owner-occupied housing. Elimination of both of these imputations would make the treatment of owner-occupied housing and consumer durables consistent with the imputation used for government structures and equipment in the accounts.

With respect to saving, Denison feels that the IEA expanded net saving is much less interesting for the analysis of economic growth and fluctuations than NIPA net saving. The IEA's net saving shows what each sector contributes toward financing all capital formation, whereas NIPA net saving shows what each sector contributes toward financing private business sector investment (including owner-occupied housing). Which of these is the more interesting figure is a function of one's model of economic behavior. It may be noted, however, that much of the difference between IEA and NIPA sector net saving does not arise from the expansion of the gross capital formation concept but from the IEA modifications of NIPA sectoring, the largest contributing factors being owner-occupied housing, nonprofit institutions, and pension and insurance reserves. Without these changes, NIPA household and government sector net saving could be derived from IEA net sector saving for these sectors by simply subtracting their respective net capital formation.

G. The form of the accounts

In her comments, Tice points out that, by and large, what the IEA's have done is move existing pieces into a new configuration, and she therefore considers it legitimate to ask whether all this rearrangement makes us any better off: Are the IEA's more precisely estimated and more illuminating than the existing NIPA's and FOF accounts? By definition, of course, the IEA's are exactly as precisely estimated as the NIPA's and FOF accounts, because they are merely a reorganization of the data provided by the two systems. This has some drawbacks. As Tice noted, reliance on the FOF accounts resulted in two major deficiencies in the IEA's: (1) the omission of revaluations for fixed claim assets, and (2) the placing of all changes in land value in the revaluation accounts.

Those with the most extensive comments on the form of presentation were Tice and Tobin. Denison's comment was limited to the point that a gross saving and investment account such as BEA provides is very useful and its absence from the IEA's makes it much more difficult to obtain an overview. All the information that would be shown in such an account is already included in each sector's capital transaction account, but nevertheless, we agree with Denison that a combined gross saving and investment account would be useful and should be presented.

1. IEA's and the FOF accounts.—Tice finds the IEA presentation difficult, unclear, and confusing for the user of the FOF accounts, for three reasons. First, she feels that it is unfortunate that the IEA current accounts stress gross saving and investment while the capital accounts for the Nation use net concepts; as a result, she considers it difficult to relate the current and capital accounts conceptually or empirically. At the same time, she considers that too much information is provided in the sector capital accounts, where net concepts of capital stock are derived from gross investment flows. Second, she cites the lack of enterprise sector discrepancies between net saving as measured in the current and capital accounts as a severe limitation of the IEA system. Finally, she feels that, in terms of presentation, the IEA's are not as convenient for the analysis of financial markets as the FOF system because, in that system, time series are typically given for each of the component accounts separately—capital transactions, revaluations, and balance sheets. Her conclusion is that clearly the specialist user of the FOF system probably will not find the IEA's to his liking and not really appropriate for his purposes, but for the NIPA user the IEA's are a useful introduction to this financial information. But even here she finds problems, considering that the asset detail that is retained may be overwhelming for the NIPA user at the same time it is insufficient for the FOF specialist.

On the gross/net question, the IEA income and product accounts—like those in the NIPA's—are centered around gross capital formation and gross product, but the IEA balance sheets are based on current market values, which, of course, reflect net values. The only way to use the same concepts in both forms of accounts would be to adopt net capital formation and net product as the basis for the current accounts. While some might feel that this would be desirable, a majority of users, as indicated by the practices of most countries,

have shown a preference for gross concepts in the current accounts. This does not, of course, preclude relating the current and capital accounts, because full details are given in the sector capital accounts on gross capital formation and capital consumption.

With respect to Tice's desire to have the discrepancies of net saving in the enterprise sector shown as an addendum item, this is simply done and the more recent versions of the IEA's do incorporate this item. As Tobin observed, the unexplained discrepancies are disturbingly large and a concerted effort is needed to diagnose and remedy these inconsistencies.

With respect to the form of the IEA's, it is true that their design is not based on the FOF system, and FOF specialists may ask the reason for this. Although the FOF system presents detailed data on financial transactions, it contains only very rudimentary information on other aspects of the national accounts, and it could not very well serve as the basis for a comprehensive framework. It was considered more appropriate for the IEA's to extend the NIPA's along the lines suggested by the United Nations SNA to comprehend capital transactions, revaluations, and balance sheets.

Tice observes that the IEA method of consolidating net worth for the enterprise and household sectors is different from the FOF consolidation. The IEA's subtract the equity owned by households (including the market value of corporate stock held by households) from enterprise net worth, whereas the FOF presentation leaves enterprise net worth intact and reduces household net worth correspondingly. Tice points out that the FOF treatment suggests a more important role in wealth owning for enterprises and may lead to useful insights about the control and likely use of this wealth. Tobin, however, notes that the IEA consolidation results in a consistent way of handling deviations of "q" from 1. Such a measure is, of course, not available in the FOF treatment, and it is not readily apparent what theoretical meaning or analytic use can be attributed to the FOF measure of household net worth reduced by enterprise net worth. Furthermore, because the unconsolidated enterprise net worth is also explicitly given in the IEA sector accounts, it can be used when this concept is analytically appropriate.

Taylor objected to the sharp division in the IEA's between the current and capital accounts. He felt that this tends to obscure profoundly the definitional connections between these two accounting forms in ways that are not helpful to the inexpert user and that can easily lead to error. The same sharp division is, however, also found in the Summary of Flow of Funds Accounts table presented in the May 1982 SURVEY. Indeed, the capital transactions account of the IEA's contains essentially the same transaction flows as are shown in that table. Even in the more detailed sector statements of saving and investment published by the Federal Reserve Board only summary totals are provided for current income and outlays.

The sharp division between current and capital transactions could be avoided by listing all transactions together in terms of sources and uses of funds—as the FOF accounts once did. The sources and uses approach is quite appropriate where the focus of interest lies in the analysis of a limit-

Errata: May 1982 Survey of Current Business

Page	Correction
6	Account 1: The line numbers 36–45 should be moved up so that 36 appears as the line number for "Residential," not "Exports," and 45 appears as the line number for "State and local."
7	Account 1, line 1: The numbers in parentheses should read (1–31), not (1–39).
25	Table 8, line 68: The figure 328.1 should appear in the "Enterprise" column, not in the "Government" column.
26–29	Annex 2. Reconciliation Tables. Table A shows corrections for the "Source" column of these tables.
73	Column 2: Insert "and constant" before "dollars.²", which is the first word in the column.

Table A.

Item	Line number	Billions of dollars		Source	
		BEA	IEA's	Published	Correct
Reconciliation Table 1: B. Other structures	14B	*93.5	93.6	BEA5.2L14+BEA5.2L15−LINE 14A	BEA5.2L10+BEA5.2L16−BEA5.5L99
Owner-occupied houses	15		94.7	BEA5.5L95−BEA5.5L100	BEA5.5L99
Net exports of goods and services (BEA)	following 24	−.6		BEA1.1L18−LINES26A-27A	BEA1.1L18−LINES26A-27A
Exports (BEA)	following 24	219.8		BEA1.1L19−LINE 26A	BEA1.1L19=LINE 26A
Less: Imports (BEA)	following 24	220.4		BEA1.1L20−LINE 27A	BEA1.1L20=LINE 27A
Rental income	46	27.3	17.5	BEA2.1L22−BEA5.5L79	BEA2.1L12−BEA5.5L79
Reconciliation Table 2: A. Payments	14A	91.4	91.4	BEA2.1L18−BEA3.12L5	BEA2.1L16−BEA3.11L5
Reconciliation Table 3: Enterprises	13	64.3	64.3	BEA3.6L2−BEA3.13L5+26)+IEA1.1L3D	BEA3.6L2−BEA3.13L5+16)+IEA1.1L3D
Government	15	27.9	27.9	BEA3.13L5+6)−IEA1.1L3D	BEA3.13L5+16)−IEA1.1L3D
Less: Wage accruals less disbursements	2	.2		BEA3.1L25	BEA3.1L22

* A corrected estimate, published as 95.2.

ed number of transactions over a period of time. The distinction between current and capital is really quite arbitrary, and for different purposes different classifications may be desired. However, this approach becomes more awkward as increased detail is given, and it does not solve the problem of relating capital transactions to the revaluation and balance sheet items. The FOF presentation avoids these problems by limiting the income and expenditure flows to a few summary measures, and providing completely separate revaluation and balance sheet information.

Adler and Sunga made a similar point in suggesting that, as is done in Canada, the capital finance account might directly follow each sector's income and outlay account. This is appropriate in Canada, however, primarily because Canada does not have either revaluation accounts or balance sheets, and so does not need to find a place for them.

2. A matrix presentation.—Tobin suggests that the IEA's could be displayed somewhat more informatively if a matrix presentation were used. For balance sheets, there would be a matrix for each date with a row for each asset and debt category and a column for each sector. Each cell (ij) would display the net position (positive, negative, or zero) of the sector (i) in the asset (j). When information permits, the gross positions, positive and negative, could be shown in the cell with the net holding equaling their difference. The same matrix format can, of course, record the changes in sector holdings of assets from one date to another. Within each cell there would be, as in the IEA tables, two entries, one for the sector's net purchases or sales of the assets at the prices of the period, and one for revaluation of assets previously acquired. For any sector, the sum of all these entries is the change in the net worth, similarly split between the value of net acquisitions (which is the net saving of the sector) and revaluation of existing holdings. Finally, a second flow matrix can be constructed that will also lead to the same estimates of sectoral net saving. In this matrix, the columns are the same, but the rows represent transactions other than the purchase or sale of assets. The row categories are types of transactions like taxes, transfers, income payments, consumption outlays, and labor compensation. If the list is exhaustive, their net sums will be the saving figures. Tobin indicates that the format he is advocating is like that used in the European System of Accounts of the European Economic Community (its Table T2) except that he would like to consolidate the rows for assets and liabilities of the same type.

Such a matrix approach does have the advantage that it provides an overview of the structure of the economy at a given point of time and of its changes from one date to another. As Tobin observes, it can be carried out at different levels of aggregation. At more detailed levels of aggregation where many sectors and subsectors are shown and assets, financial instruments, and current transactions are classified in some detail, the matrixes would become quite large, however. Like large input-output tables, they would then be difficult to present or use in table form.

3. The need for alternative forms.—The matrix approach to the presentation of data is diametrically opposite to the time series approach recommended by Tice for financial analysis, and, like the IEA system, it maintains the sharp difference between current and capital transactions to which Taylor has raised objections. It is thus apparent that different uses may call for different forms of presentations.

Whatever the form of presentation, the summary accounts should have the function of providing an overview of the economy and defining the framework of the economic accounting system, much in the same way BEA's 5-account system provides an overview of production, distribution, and use of the Nation's output and a formal accounting framework for more detailed supporting tables. As the system of economic accounts is extended, however, the task of interrelating all of its component elements becomes more complex. It may, therefore, be useful to display a number of alternative (but, of course, consistent) presentations at a fairly summary level, including time series, matrixes, and related accounts, so that users can choose the forms that suit them best. The FOF presentation has adopted this sort of approach in providing accounts not only for transactors, but also for specific transactions.

For the more detailed data, it is apparent that for the research analyst this is best made available in machine readable form so that it can be processed and analyzed by computer. The IEA tables published in the May 1982 SURVEY represented only the tip of the iceberg—data were presented only for the period 1969–80, and only for the four major sectors of the economy. Data for these sectors are available for the full period 1947–80, and data for 14 subsectors are available for the period 1958–75, all on computer tape obtainable, as noted earlier, from BEA. (See the box on page 42 for information about the computer tape.)

Summary and Conclusions

A. IEA objectives and the reviewers' responses

1. The modifications and extensions proposed by the IEA's.—The IEA's proposed both to modify the existing NIPA's and to extend their scope. The modifications were based on the principle that the aggregate accounts for the Nation and the sector accounts should be viewed conceptually as combinations and consolidations of the accounts of individual transactors. This principle led to three specific types of modification. First, the NIPA sectoring of the economy was altered, removing nonprofit institutions from the household sector and setting up an enterprise sector. Second, some modifications were introduced in the treatment of specific flows in the NIPA's, including such items as owner-occupied housing, government and consumer durables, and pensions. Finally, market transactions and imputations for nonmarket activity were separated so that additional imputations could be introduced without impairing the usefulness of the system for the analysis of the market economy.

Two types of extension of the NIPA's were envisioned. First, the IEA's introduced accounts for stocks—balance sheets—and integrated them with the flow accounts

within its modified framework of aggregate national accounts and sector accounts. This entailed construction of the revaluation accounts needed to show how balances at the end of a period are derived from those at the beginning of the period. Second, the IEA's proposed extending the national accounting framework to embrace microdata as well as macrodata. It is our view that it is now feasible, statistically as well as conceptually, to construct composite microdata sets for households, enterprises, and governmental units that would consolidate to the sector accounts of the Nation. Such microdata sets can accommodate a wide variety of economic, social, demographic, and locational information relating to individual microunits.

2. The BEA response.—The IEA proposals for modification and extension of the national accounts encountered substantial opposition from those who had been intimately involved in the original design or more recent implementation of the NIPA's. The proposed sectoring changes were rejected, on the grounds that the objective of establishing sectors compatible with the accounts of individual transactors is a chimera, and that the removal of nonprofit institutions from the household sector would complicate the accounts and increase the heterogeneity of the enterprise sector. The IEA modifications in the recording of transactions were opposed on the grounds that the principles on which these changes were made were neither consistent nor valid. Specifically, strong support was voiced for retaining the BEA treatment of owner-occupied housing, consumer durables, and pensions. One comment did, however, recognize that the question of consumer and government capital formation has long been a controversial topic and that the proposed IEA treatment seemed sensible. The proposed separation into market transactions and nonmarket imputations was rejected both because it was considered to increase the complexity of the accounts and because the imputations contained in the NIPA's were not considered to be more speculative or different in kind from market transactions.

The extension of the NIPA's to embrace balance sheets was discussed by only one BEA staff member. A detailed examination of the IEA capital accounts was provided, and the question was posed as to whether the IEA's were more illuminating than the existing accounts. The general conclusion was that the IEA presentation was clearly not as convenient for the analysis of financial markets as FOF accounts, and the specialist user of that system would not find it to his liking. For the NIPA user, however, the IEA's were considered to be a useful introduction to this financial information. The proposed IEA extension involving the development of microdata underlying the accounts was generally regarded by all the BEA staff who commented as both impractical and too costly.

3. The response of outside reviewers.—The outside reviewers were, on the whole, more receptive to the modifications and extensions proposed by the IEA's, although the viewpoints they represent are quite varied. In the comments relating to the modifications of sectoring, there was considerable support for removing nonprofit institutions from the household sector, but one comment expressed concern for the effect this would have in blurring the profit-motivated character of the enterprise sector. With respect to modifications in the recording of transactions, strong approval was given to the alteration in the treatment of owner-occupied housing, government and consumer durables, and pensions, although in relation to owner-occupied housing and consumer durables one comment noted that the proposed treatment would alter the traditional concept of the household as a consumption unit. There was some support for, and no opposition to, the separation of nonmarket imputations from market transactions; it was felt that this would permit the future expansion of estimates, if desired, into other nonmarket areas.

With respect to the extension of the NIPA's to embrace balance sheets, all of the outside reviewers were strongly in favor of such a development, but they differed in their views on the form of presentation of this information. There was agreement that capital accounts showing stocks of durables should be developed for the government sector, and that owner-occupied housing and consumer durables should be included in the balance sheets of households. There was relatively little discussion of the incorporation of micodata. One comment noted, however, that although the development of microdata was both difficult and costly, the micro-macro data methodology intuitively points in the right direction.

B. The national accounts as a framework for the statistical system

One of our major purposes in developing the IEA's was to demonstrate that, with some modifications and extensions, the NIPA's could be used as a comprehensive framework for the U.S. statistical system. Although our presentation of the IEA's strongly emphasized this objective, this topic was not commented upon by either the BEA staff or the outside reviewers. Nevertheless, we would argue that it is this aspect of an integrated and expanded system of accounts that is most fundamental and important for the future development of both the national accounts and the U.S. statistical system.

The Bonnen Report on "Improving the Federal Statistical System" pointed out that there are over 100 Federal agencies with statistical programs, and the statistics that are produced in smaller statistical units or as a by-product of administrative and regulatory data are often unreliable and poorly designed for their purposes.[8] Restrictions on interagency sharing of data for statistical purposes result in lack of comparability of data produced by different agencies as well as failure to exploit fully data bases developed at substantial costs. There is not enough interaction between data producers and data users, including policy analysts and policymakers, largely because they are in different agencies. As a result, producers are insufficiently informed about the utility of the data they provide, and ana-

8. "Improving the Federal Statistical System: Report of the President's Reorganization Project for the Federal Statistical System," *Statistical Reporter*, May 1980.

lysts are often unaware of important limitations of the data they use. As these conclusions of the Bonnen Report clearly imply, the term "statistical system" as applied to the United States is indeed a misnomer. The statistical resources that exist in the United States are highly fragmented and uncoordinated.

Prior to the 1970's, the Office of Statistical Standards of the Bureau of the Budget and its predecessor organizations made an effort to improve the quality of statistics through forms review and review of the budgets of the statistical agencies, and by establishing outside review committees. Although such efforts were useful and in some degree successful, they were quite inadequate to deal with the highly decentralized statistical system. Since that time, however, the situation has steadily deteriorated. In 1971, the function of statistical coordination was assigned to the Statistical Policy Division of the Office of Management and Budget. By 1977, the staff had been reduced to 29, from the level of 69 its predecessor had had in 1947. In 1978, the Statistical Policy Division was abolished and the coordination function was moved to the Office of Federal Statistical Policy and Standards in the Department of Commerce, with further reduction of staff. That office has now been abolished, and at the present time the only statistical coordination function that remains in the Federal Government is in the Office of Information and Regulatory Affairs of the Office of Management and Budget—which is primarily concerned with meeting the mandates of the Paperwork Reduction Act, not with improving statistics.

In the context of the fragmentation and decentralization of statistical activities coupled with the abandonment of serious efforts to achieve substantive coordination, the attempt to develop a comprehensive framework for the statistical system may seem to be an exercise in futility. Certainly BEA itself is in no position, in terms of either authority or budget, to bring about an integrated statistical system, and the Office of Management and Budget has neither the required staff nor the inclination to be concerned with this topic.

Nevertheless, some things can still be accomplished. Perhaps the most obvious and immediate step that could be undertaken would be a joint effort by BEA and the Federal Reserve Board to develop a system of accounts that would embrace the NIPA's, FOF accounts, and balance sheets, using common classifications of transactions and of sectors and subsectors. In such a common system, it would, of course, be reasonable that BEA would produce more detailed and expanded information relating to the current accounts and reproducible capital stocks, and the Federal Reserve Board would specialize in producing the financial information. The two agencies might indeed present different levels of detail in their respective publications, but it would be most useful if both sets of information were recognizable as parts of the same system of accounts.

There are also other areas where interagency cooperation would be desirable. There would, for example, be considerable advantage in having common classifications for the price information collected by the Bureau of Labor Statistics and for the industry and final product information in the national accounts. The fact that these systems differ reflects in large part the periods in which they originated, not present needs. Similarly, much would be gained by allowing all agencies providing data classified by industry to use the Standard Statistical Establishment List as the basis for assigning industrial classifications to their reporting units.

These partial and ad hoc measurements cannot, however, be expected to achieve the type of integrated statistical system here being proposed. To achieve this, it would be necessary to formulate in some detail an overall accounting system that is capable, not only of integrating all economic data, but also as serving as a framework for social, demographic, environmental, and regional information. Such a system would need to provide for the interrelation of macro- and micro-data.

The required system cannot be expected to emerge without consideration of many of the important specific issues involved. The National Accounts Review Committee, which was convened by the Office of Statistical Standards a quarter of a century ago, was a useful device in setting forth the major issues of national accounting as viewed at that time. Similarly, in the development of the revised United Nations SNA, major issues were reviewed by those concerned with national accounting from many different countries, who met regularly over a period of years. The time may now be appropriate to assemble a new group of producers and users of statistics embracing not only those concerned with the national economic accounts but those involved in a wider spectrum of other types of information. In this connection, consideration should be given to the experiences of other countries in the development of their statistical systems, and to the emerging international statistical standards. Even if no immediate action is contemplated, such an effort to design an integrated set of national accounts and related data would be extremely important in helping to determine the future architecture of the statistical system. Without some overall plan to follow, the U.S. statistical system will remain fragmented and uncoordinated.

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